MSN
Research for Better Medicines

Solvent Recovery System

Date: 17th March 2025

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Fresh solvent Purchased trend data from LifeScience-S for FY 2024-25(KL)

SI#	Month	Qty in KL	Value in Cr.	Average	
				Qty(KL)	Value(in Cr.)
1	April	563	3.84	805	5.17
2	May	863	5.47		
3	June	731	4.39		
4	July	826	5.43		
5	Aug	883	5.87		
6	Sep	962	5.99		
7	Oct	722	4.02	612	3.64
8	Nov	712	4.59		
9	Dec	312	1.85		
10	Jan	873	5.15		
11	Feb	444	2.60		
	Total	7,891	49.21		
	Average	717.36	4.47		

Improvement(baseline Sep'24)	
Qty	Value
23.89%	29.47%

Solvent Consumption, Process recovery & Spent sales detail from LifeScience-3 (FY 2024-25)

Month	Fresh		RFS		TOTAL	Process Output		Spent Sales	Remarks
	Qty. (KL)	%	Qty. (KL)	%	Qty. (KL)	Qty. (KL)	%	Qty. (MT)	
Apr'24	456	40	693	60	1148	550	48	263	
May'24	757	46	896	54	1652	1462	88	157	
Jun'24	682	46	806	54	1488	1201	81	227	
July'24	816	42	1113	58	1929	1517	79	213	
Aug'24	795	45	957	55	1752	1317	75	142	
Sep'24	968	47	1095	53	2063	1658	80	135	
Oct'24	728	50	742	50	1470	879	60	199	
Nov'24	660	48	704	52	1364	1016	74	177	
Dec'24	536	58	390	42	926	614	66	234	
Jan'25	619	50	612	50	1231	887	72	209	
Feb'25	646	53	562	47	1208	919	76	241	
Total	7662	47	8569	53	16231	12021	74	2197	

Consumption in Feb'25	Qty in KL	%
Fresh Consumption	646	53
Process distillate Consumption(Reactor distilled)		
RFS Consumption(Job work)	0	0
RFS Consumption(inside	562	47

Spent sales in Feb'25	Qty in MT	Value in Lakhs
Distilled mixed solvent	51.92	5.19
Spent Mixed solvvent	189.54	18.95
Total	241.46	24.15

Target 50-50

Process output is considered with moisture(CF Ml's, Organic layers & Process distillate)

Improvements-Reduction at source & RFS Consumption increase details(baseline-Sep’24)

S. No.	Product Name	Stage Name	Name of the solvent	Standard qty (Sep'24 end) (liters)	Revised qty (liters)	Reduction at source (in Liters)	No.of Batches per month	Total Qty
1	**Clopidogrel**	COPB1	MDC	3500	2700	800	23	18400
		CTPS1	Toluene	1800	1400	400	46	18400
		CGBH1	MDC	2000	1600	400	66	26400
			Toluene	2600	2100	500	66	33000
			Methanol	80	40	40	66	2640
		CGBH2	Cyclohexane	2500	2000	500	74	37000
2	**Flicanideacetate**	FNDA1	Toluene	1625	625	1000	17	17000
			n-Heptane	5200	2600	2600	24	62400
3	**Pregabalin**	PBLN3	Methanol	3000	2200	800	103	82400
4	**Rosuvastatin**	RSC2B	IPA	2000	250	1750	66	115500
5	**Atrovastatin**	ATSC2	IPA	4500	3600	900	38	34200
Total Qty. (L)				**31197**	**19946**	**11251**	**589**	**447340**

Improvements-Process Recovery increased details(baseline-Sep'24)

S.No	Product Name	Stage Name	Name of the Solvent	Process Input Qty (lts)	Process output Qty (lts)	Revised output Qty (lts)	Increased Output Qty (lts)	Avg. No. of batches per month	Total Qty	Remarks
1	Clopidogrel Bisulfate	CGBS1	MDC (S-807)	1600	550	950	400	17	6800	Existing RT for Primary Condenser and Chilled water for Secondary Condenser. Chilled water circulation proposed for primary condenser & Primary condenser collection is being sub-cooled through secondary condenser by installing Secondary Condenser below Primary condener for C/ SSR/ 34.
2	Clopidogrel Bisulfate	COPB1	MDC (S-807)	2700	850	2100	1250	8	10000	Existing RT for Primary Condenser and Chilled water for Secondary Condenser. Chilled water circulation proposed for primary condenser & Primary condenser collection is being sub-cooled through secondary condenser by installing Secondary Condenser below Primary condener for C/ SSR/ 32.
3	Clopidogrel Bisulfate	COPB1	Methanol (S-801) + Acetone (S-805)	6000 (ANFD MLs)	4200	4900	700	8	5600	Existing RT for Primary Condenser and Chilled water for Secondary Condenser. Chilled water circulation proposed for primary condenser & Primary condenser collection is being sub-cooled through secondary condenser by installing Secondary Condenser below Primary condener for C/ SSR/ 22.

Improvements-Process recovery increased details(baseline Sep'24)

Product	Stage code	Solvent name	Usage / Batch			Recovery Usage %	Remarks
			Fresh	Recovery	Total		
Atorvastatin	ATSC1	Cyclohexane	2000	6000	8000	75	Nutsch filter /workup/Plant Distillation
		IPA	0	6600	6600	100	Water media /CF/Plant /Column distillation using with 10% MC
	ATSC2	Acetonitrile	1120	1690	2810	60	CF/Plant /Column distillation using with 10% MC
		IPA	143	0	143	0	CF/Plant /Column distillation using with 10% MC
	ATSC3	Toluene	400	2600	3000	87	workup /Plant distillation
Pregabalin	AMHA1	Toluene	400	4000	4400	91	Workup / Plant distillation
		Methanol	1800	1500	3300	45	Reaction consumption 600 lts / Plant / Column
	AMHA2	Toluene	0	7400	7400	100	Workup / Plant distillation
		Ammonia	2400	7400	9800	76	Work up/Plant distillation
		Ethylacetate	0	1800	1800	100	workup / CF/Plant distillation
	AMHA3	Toluene	100	700	800	88	workup /Plant distillation
		Methanol	3000	5400	8400	64	Water media/ANFD/Plant distillation
Clopidogril	COPB1	MDC	0	2700	2700	100	Workup/Plant distillation
		Methanol	4120	0	4120	0	Methanol+Acetone Mixed solvent
		Acetone	540	0	540	0	Experiments going on with single solvent
	CTPS1	Toluene	0	1400	1400	100	Workup/plant distillation
		Cyclohexane	0	2200	2200	100	ANFD / Plant distillation
	CGBS1	MDC	0	1600	1600	100	Workup/Plant distillation
		IPA	1200	1650	2850	58	Water media/CF/Plant disti / Column dist
		Toluene	0	7050	7050	100	Water media/CF-2 times /Plant disti / Column dist
		Ethylacetate	1400	2100	3500	60	workup / CF/Plant distillation
	CGBS2	Cyclohexane	400	1600	2000	80	work up / plant Distillation
		Acetone	1300	1700	3000	57	workup / CF/Plant dist. / Column distillation
Rosuvastatin	RSC2B	IPA	2100	0	2100	0	Water media /Plant / Column distillation
		Ethylacetate	4500	8500	13000	65	CF/Plant / Column distillation
		Toluene	825	800	1625	49	Work up / plant distillation / Column distillation -

Job work pending quantity from vendors more than 90 days (in MT)

Vendor	Name of the solvent	Qty	Total	Remarks
Zen distillations	IPA	29 MT	37	Long Pending
	Pet.ether	5 MT		
	Acetonitrile	1 MT		
	MIBK	2 MT		
	Cyclohexane	0.3 MT		
Sneha Organics	TEA	0.4 MT	0.4	Long Pending
Mayash	IPA	6 MT	6	Long Pending

Top 5 solvents consumption & Top 5 products consumption in each solvent in Feb'25

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
Acetone	Clopidogrel	COPB1	540	0	540
		COPB12C	2060	0	2060
		CGBH2	29500	34000	63500
	Total Qty. (L)		32100	34000	66100
	Flecainide Acetate	FNDA2	300	0	300
	Total Qty. (L)		300	0	300
	Levetiracitam	LVTM2	26600	0	26600
	Total Qty. (L)		26600	0	26600
	Rosuvastatin	RSC3B	2325	0	2325
	Total Qty. (L)		2325	0	2325
	Vonoprazan	VPNA3	20	0	20
		VPNA4	1900	0	1900
	Total Qty. (L)		1920	0	1920
G.Total			63245	34000	97245
Fresh & Recovery Usage (%)			65	35	

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
Ethyl Acetate	Clopidogrel	CGBH1	5170	0	5170
	Maribavir	MAVR1	438	0	438
	Pregabalin	AMHA2		6600	6600
	Romidepsin	RDPC5	1120		1120
	Rosuvastatin	RSC2B	83300	150172	233472
		RSC2B (Crop)	7740		7740
		RSC2B Crude		4600	4600
		RSC2B Crude	1200		1200
	Total Qty. (L)		92240	154772	247012
	Safinamidel	SFML1	380		380
		SFML2	1550		1550
		SMTA1&2	800		800
	Total Qty. (L)		2730	0	2730
	Sparsentan	SPAN3	400		400
		SPAN3	300		300
	Total Qty. (L)		700	0	700
	Vonoprazan	VPNA1	1700		1700
		VPNA3	450		450
	Total Qty. (L)		2150	0	2150
G.Total			104548	161372	265920
Fresh & Recovery Usage (%)			39	61	

Top 5 solvents consumption & Top 5 products consumption in each solvent in Feb'25

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
MDC	Clopidogrel	CGBH1	2410		2410
		COPB1	700		700
		COPB12C	2800	7500	10300
	Total Qty. (L)		**5910**	**7500**	**13410**
	Gadobutrol	GDBL3	4560		4560
	Levetiracitam	LVTM2	50500	60500	111000
	Maribavir	MRBR1	110		110
	Romidepsin	RDPC3	7150		7150
		RDPC4	2800		2800
		RDPC5	400		400
	Total Qty. (L)		**10350**	**0**	**10350**
	Rosuvastatin	RSC2B Crude	3750		3750
		RVBC3	696		696
	Total Qty. (L)		**4446**	**0**	**4446**
	Sitagliptin	STPH1	11600		11600
	Sparsentan	SPAN2	1015		1015
G.Total			**88491**	**68000**	**156491**
Fresh & Recovery Usage (%)			**57**	**43**	

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
IPA	Atorvastatin	ATSC2	19750	2350	22100
	Clopidogrel	CGBH1	4425	6100	10525
	Lisinopril	LPDH1	7100		7100
	Maribavir	MAVR1	150		150
		MRBR1	285		285
	Total Qty. (L)		**435**	**0**	**435**
	Metoprolol	MPLS2	2900		2900
		MPLT1	2100		2100
	Total Qty. (L)		**5000**	**0**	**5000**
	Pregabalin	PBLN4	16700	52000	68700
	Rosuvastatin	RSC2B	24500	3600	28100
		RSC2B Crop	202		202
		RVBC3	224		224
	Total Qty. (L)		**24926**	**3600**	**28526**
	Sparsentan	SPAN1	480		480
		SPAN3	400		400
		SPAN3	200		200
	Total Qty. (L)		**1080**	**0**	**1080**
G.Total			**79416**	**64050**	**143466**
Fresh & Recovery Usage (%)			**55**	**45**	

Top 5 solvents consumption & Top 5 products consumption in each solvent in Feb'25

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
Toluene	Atorvastatin	ATSC3	2060		2060
	Clopidogrel	CGBH1	1600	2284	3884
		CTPS1	800		800
	Total Qty. (L)		**2400**	**2284**	**4684**
	Flecainide	FNDA1		1625	1625
		FNDA2	27200		27200
	Total Qty. (L)		**27200**	**1625**	**28825**
	Maribavir	MAVR1	271		271
	Medetomidine	MEDT2	5115		5115
		MEDT3	5200		5200
		MEDT4	2460		2460
	Total Qty. (L)		**12775**	**0**	**12775**
	Metoprolol	MPLT1	100		100
	Pregabalin	AMHA1	2000	1150	3150
		AMHA12C		1200	1200
		AMHA2		29600	29600
		AMHA3	1250		1250
	Total Qty. (L)		**3250**	**31950**	**35200**
	Pregabalin (cyclic Amide)	PBLN1		5310	5310
	Romidepsin	RDPC4	1100		1100
		RDPC5	200		200
	Total Qty. (L)		**1300**	**0**	**1300**
	Rosuvastatin	RVBC3	751		751
	Safinamide	SFML1	1110		1110
	Sparsentan	SPAN1	692		692
		SPAN2	1525		1525
		SPAN3	390		390
		SPAN3	300		300
	Total Qty. (L)		**2907**	**0**	**2907**
G.Total			**54124**	**41169**	**95293**
Fresh & Recovery Usage (%)			**57**	**43**	

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
Methanol	Atorvastatin	ATSC2	2680		2680
		ATSC3	14480		14480
	Total Qty. (L)		**17160**	**0**	**17160**
	Clopidogrel	CGBH1	295		295
		CGBH2	12500		12500
		CGBH2 OS	4900		4900
		COPB1	4120	5000	9120
		COPB12C	5200		5200
		CTPS1	500		500
	Total Qty. (L)		**27515**	**5000**	**32515**
	Flecainide	FNDA1	850		850
		FNDA2	1000		1000
	Total Qty. (L)		**1850**	**0**	**1850**
	Gadobutrol	GDBL3	10322		10322
		GDBL4	800		800
	Total Qty. (L)		**11122**	**0**	**11122**
	Levetiracitam	LVTM2	2200		2200
	Lisinopril	LPDH1	800		800
	Maribavir	MAVR1	564		564
		MBIR2	1000		1000
		MRBR1	240		240
	Total Qty. (L)		**1804**	**0**	**1804**
	Medetomidine	MEDT2	800		800
		MEDT3	9400		9400
		MEDT4	444		444
	Total Qty. (L)		**10644**	**0**	**10644**
	Metoprolol	MPLS2	1600		1600
		MPLT1	600		600
	Total Qty. (L)		**2200**	**0**	**2200**
	Pregabalin	AMHA1	15975	13310	29285
		AMHA12C	7300	1300	8600
		AMHA3	36750		36750
		AMHA3 2C	6786	16441	23227
	Total Qty. (L)		**66811**	**31051**	**97862**

Solvent Name	Product Name	Stage Code	Consumption Qty.(L)		
			Fresh	RFS	Total
Methanol	Pregabalin (cyclic Amide)	PBLN1(i)	150		150
	Romidepsin	RDPC3	14150		14150
		RDPC4	1680		1680
		RDPC5	400		400
	Total Qty. (L)		**16230**	**0**	**16230**
	Rosuvastatin	RSC2B	1500		1500
		RSC2B Crop	300		300
		RSC2B Crude	500		500
		RSC2B Crude	100		100
		RVBC3	717		717
	Total Qty. (L)		**3117**	**0**	**3117**
	Safinamide	SFML1	1360		1360
		SFML2	104		104
		SMTA1&2	1000		1000
	Total Qty. (L)		**2464**	**0**	**2464**
	Sitagliptin	STPH1	7800		7800
	Sparsentan	RSC2Bcrop	200		200
		SPAN1	400		400
		SPAN2	850		850
		SPAN3	500		500
		SPAN3	500		500
		SPAN4	200		200
	Total Qty. (L)		**2650**	**0**	**2650**
	Vonoprazan	VPNA1	600		600
		VPNA2	634		634
		VPNA3	1450		1450
		VPNA3 2C	100		100
		VPNA4	500		500
	Total Qty. (L)		**3284**	**0**	**3284**
G.Total			**177801**	**36051**	**213852**
Fresh & Recovery Usage (%)			**83**	**17**	

SRS Performance for FY 2024-25 from LifeScience-3(4 columns)

SI#	Month	Input Qty. in MT	Output Qty. in MT	Net Value(in Cr.)
1	April	1055	730	3.63
2	May	852	608	3.06
3	June	990	613	3.45
4	July	897	650	3.57
5	Aug	977	658	3.52
6	Sep	720	528	2.72
7	Oct	906	652	3.34
8	Nov	822	539	2.60
9	Dec	709	444	2.16
10	Jan	1,070	765	3.91
11	Feb	1,026	713	3.44
	Total	10,023	6,900	35.40
	Average	911	627	3.22

RFS (Column Distilled) Solvent stock as on 17/03/2025

Sl#	Name of the solvent	M-Code	Volume in Liters	GC
1	Methanol	S-801 D	11000	99.5
2	Toluene	S-804 D	9500	99.7
3	Acetone	S-805 D	11000	99.5
4	IPA	S-806 D	51300	99.6
5	TBA+IPA	S-806 D	71000	97.0
6	MDC	S-807 D	22700	99.7
7	Acetonitrile	S-810 D	16700	99.5
8	Ethyl Acetate	S-811 D	19800	99.6
9	Ethanol	S-822 D	4000	90.1
10	TEA	M-440	15000	99.7
Total Qty. (L)			232000	

To be distilled & To be sold Solvent stock as on 17/03/2025

Sl#	Name of the solvent	M-Code	Volume in Liters	Plant Use (in Liters)
1	Methanol	S-801 D	94200	90
2	Toluene	S-804 D	17400	90
3	Acetone	S-805 D	33000	92
4	IPA	S-806 D	416400	91
5	Pet.ether	S-808 D	5000	85
6	Acetonitrile	S-810 D	18500	90
7	Ethyl Acetate	S-811 D	37900	95
8	Ethanol	S-822 D	299000	88
9	N-Heptane	S-831 D	35300	70
10	MTBE	S-832 D	44000	80
11	TEA	M-440	65600	92
Total Qty. (L)			1066300	

Sl#	Name of the solvent	Volume in Liters	Reason for sale
1	Spent Mix	89000	Spent Mix + Column Fractions

THANK YOU!

MSN LS-3 TEAM

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